

WHAT IS CLAIMED IS:

1. A method for determining dental alignment of a 3-dimensional model of one or more teeth of a patient, said method comprising the steps of:

- (a) obtaining a radiograph of the teeth of the patient;
- (b) obtaining a digital image from the radiograph indicative of the dental alignment of the teeth relative to a dental arch of the patient;
- (c) overlaying the 3-dimensional model of the teeth with the digital image obtained from the radiograph;
- (d) determining vertical and horizontal mis-alignment of the teeth in the 3-dimensional model relative to the digital image obtained from the radiograph; and
- (e) adjusting the 3-dimensional model to correct for the mis-alignment, thereby producing an adjusted 3-dimensional model of the teeth that is corrected for the vertical and horizontal alignment of the teeth relative to the dental arch.

2. The method as claimed in claim 1 wherein the adjusted 3-dimensional model is used to fabricate a prosthesis.

3. The method as claimed in claim 1 wherein the step (e) of adjusting the 3-dimensional model comprises adjusting size, shape and position of the teeth in the 3-dimensional model.

4. The method as claimed in claim 1 wherein the step (b) of obtaining the digital image comprises identifying key vertices of the teeth in the radiograph and fitting a vertices curve through the vertices.

5. The method as claimed in claim 4 wherein the step (c) of overlaying comprises overlaying the vertices curve over the 3-dimensional image such that the curve is used in step (d) to determine mis-alignment.

6. The method as claimed in claim 1 wherein the step (b) of obtaining the digital image comprises identifying center of mass points of the teeth in the radiograph and fitting a center of mass curve through the center of mass points.

7. The method as claimed in claim 6 wherein the step (c) of overlaying comprises overlaying the center of mass curve over the 3-dimensional image such that the center of mass curve is used in step (d) to determine misalignment.

8. The method as claimed in claim 1 wherein the step (a) of obtaining the digital image comprises forming an outline of one or more teeth in the radiograph and wherein the outline is used in step (d) to determine misalignment.

9. The method as claimed in claim 2 further comprising the step of measuring the displacement of one or more key points on each tooth in the digital image from a horizontally aligned vertical reference, and using the displacement to form a template or fixture that can be used to check the fit of the prosthesis fabricated from the adjusted 3-dimensional model relative to a gum line.

10. The method as claimed in claim 9 wherein the horizontally aligned vertical reference is located relative to the highest point on the teeth and to the position of the gum line.

11. The method as claimed in claim 9 wherein the horizontally aligned vertical reference is an arbitrary distance from the teeth independent of the gum line.